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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,645	07/28/2003	Kazuhiro Kagami	03500.017456	3604

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EXAMINER	
LEE, HSIEN MING	

ART UNIT	PAPER NUMBER
2823	

DATE MAILED: 02/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/627,645	KAGAMI ET AL.	
	Examin r	Art Unit	
	Hsien-ming Lee	2823	

-- The MAILING DATE of this communication app ars on th cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 November 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6 and 11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6 and 11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

HSIEN-MING LEE
PRIMARY EXAMINER

1/27/2005

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Remarks

1. The objection to claim 11 is withdrawn.

2. The cancellation to claims 7-10 is acknowledged. Claims 1-6 and 11 are pending in the application.

Grounds of Rejections

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Hamaguchi et al. (US 5,631,753).

Hamaguchi et al. teach the claimed method of forming an electrode and wiring, comprising:

- **forming a base pattern 8** on a transparent substrate 13, i.e. applying a base forming material, comprising a photosensitive resin solution mixed with metallic compound aqueous solution, onto the substrate 13 to form a photosensitive resin layer 7 on the substrate 13 and exposing the photosensitive layer 7 to light through a photomask 9 and then dry to form a catalyst-containing relief 8, which is equivalent to the claimed base pattern (col. 6, lines 51-63 and Fig.5A-5C);

- **absorbing an organic metallic compound** into the base pattern 8, i.e. immersing the base pattern 8 in an electroless plating solution (col. 6, lines 65-67), wherein the electroless plating solution at least comprising a reductant, a water-soluble heavy ***metal salt***, a basic compound, a pH adjusting agent, a buffering agent, a ***complexing agent***, an accelerator, a stabilizer, a surface active agent (col. 7, lines 47-53), and wherein the reductant including an ***organic compound***, such as N-dimethylamine borane (col. 7, lines 53-56), the water-soluble heavy ***metal salt*** including nickel, cobalt, iron, copper, and chromium (col. 7, lines 57-59); and
- **baking the base pattern 8** which the organic metallic compound is absorbed, i.e. subjecting the base pattern 8 to a heat treatment at 150 °C ~ 200 °C (col. 7, lines 2-3) to make a light-shielding layer (col. 7, line 1 and Fig.5D);

  wherein the base pattern forming step includes: applying a photosensitive resin 7 containing a water-soluble photosensitive resin component and a water-soluble metallic compound onto the transparent substrate 13 (col. 6, lines 51-63), wherein an example of the water-soluble photosensitive resin component is a 20% aqueous solution of diazo resin (col. 7, lines 8-23 and col. 11, lines 33-34) and the example of the metallic compound is an aqueous solution of palladium chloride (col. 7, lines 37-41 and col. 11, lines 28-36); and
- **exposing the photosensitive resin 7 to a light source** through the photomask 9 (Figs. 5A-5B and col. 6, lines 59-60).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 2-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamaguchi et al. in view of Fursue et al. (US 6,586,155).

In re claim 2, Hamaguchi et al. do not expressly teach that a compounding ratio of the water-soluble metallic compound to the photosensitive resin component is 1.0 % by weight to 20 % by weight.

Fursue et al., in an analogous art, suggest that the ratio is a consideration of increasing drying speed (col. 3, line 63 through col. 4, line 7).

Therefore, one of the ordinary skill in the art, at the time of the invention was made, would have been motivated to optimize the compounding ratio of Hamaguchi et al. to increase the drying and/or baking speed, as taught by Fursue et al., since the ratio variation is obvious to the ordinary in the art for optimizing the subsequent processing step, such as improve drying speed (col. 3, line 63 through col. 4, line 7, Fursue et al).

In re claim 3, Hamaguchi et al. do not teach that the water-soluble metallic compound is a water-soluble metallic compound including palladium, gold, silver, platinum and cooper (col. 7, lines 39-40) but not rhodium, bismuth, ruthenium, vanadium, chromium, tin, lead, or silicon, as claimed.

However, the selection of the water-soluble metallic compound is obvious because it is a matter of determining optimum process condition by routine experimentation with a limited number of species. In re Jones, 162 USPQ 224 (CCPA 1955)(the selection of optimum ranges within prior art general conditions is obvious) and In re Boesch, 205 USPQ 215 (CCPA 1980)(discovery of optimum value of result effective variable in a known process is obvious). For example, one of the ordinary skill would have been motivated to select a desired water-soluble metallic compound capable of an electroconductive film, as evidenced by Fursue et al (col. 3, lines 29-35 and 59-62), in which Fursue et al teach that the water-soluble metallic compound is a water-soluble metallic compound including rhodium, bismuth, ruthenium, vanadium, chromium, tin, lead, or silicon (col. 3, lines 60-62).

In re claims 4-5, Fursue et al. also remedy the deficiency in Hamaguchi et al. in that the organic metallic compound is a complex and a ligand thereof is a nitrogen-containing compound and the nitrogen-containing compound is a nitrogen-containing compound having at most 8 carbon atoms (col. 3, lines 36-46, Fursue et al.). Therefore, it would have been obvious to one of the ordinary skill in the art, at the time of the invention was made, to combine Fursue et al. with Hamaguchi et al to arrive the claimed invention, since by this manner it would improve the solubility of the organic metallic compound in water and reduce crystallizing property (col. 3, lines 47-53, Fursue et al.).

In re claim 6, Fursue et al. further remedy the deficiency in Hamaguchi et al. in that the organic metallic compound is a platinum complex (col. 3, lines 29-32 and col. 6, lines 19-22). Therefore, it would have been obvious to one of the ordinary skill in the art, at the time of the invention was made, to combine Fursue et al. with Hamaguchi et al to arrive the claimed

invention, since by this manner it would be beneficial to obtain an electrode film with stable property (col. 3, lines 32-35, Fursue et al.).

7. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. (US 6,011,567) in view of Hamaguchi et al..

Nakamura et al., in Fig. 66 and related text on col. 44, line 65 through col. 45, line 39, teach a method of manufacturing an image-forming apparatus including a plurality of electron-emitting devices 610 and an image-forming member 616 (616r, 616g and 616b) for forming an image by irradiation of electron beams emitted from the electron-emitting devices, comprising forming said plurality of electron-emitting devices 610 and said image-forming member 616, at least an electrode 614 a/614b and a wiring 613a/613b.

Nakamura et al. do not teach comprising the method as recited in method 1. However, Hamaguchi et al teach the claimed method, comprising the steps of forming the base pattern; absorbing the organic metallic compound; and baking the base pattern, as stated previously.

Therefore, it would have been obvious to one of the ordinary skill in the art, at the time of the invention was made, to combine Nakamura et al. with Hamaguchi et al to arrive the claimed invention, since by this manner it would provide a satisfactory image-forming apparatus.

Response to Arguments

8. Applicant's arguments filed 11/18/2004 have been fully considered but they are not persuasive.

Applicant argued that Hamaguchi's method does not lead to the adsorption of an organic metallic compound because the electroless plating solution does not contain an organic metallic compound. (last paragraph, page 6).

In response to the argument, Hamaguchi et al. teach immersing the base pattern 8 in the electroless plating solution (col. 6, lines 65-67), wherein the electroless plating solution at least comprising a reductant, including an ***organic*** compound, such as N-***dimethylamine*** borane (col. 7, lines 53-56), and a water-soluble heavy metal salts (col. 7, lines 48-49). The dimethylamine is known to be an ***organic*** amine. Since the electroless plating solution at least comprises the ***organic compound*** and the water-soluble heavy ***metal salts***, by immersing the base pattern 8 in the electroless plating solution, it would lead to absorbing the organic metallic compound into the base pattern 8.

Applicant also argued that Hamaguchi et al. do not teach the step of baking the base pattern because the baking temperature is about 200 °C, which is much lower than 400~600 °C as in the instant invention. (second and third paragraphs, page 7).

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the baking temperature is about 400~600 °C) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant further argued that Furuse failed to disclose or suggest absorbing an organic metallic compound into the exposed base pattern and baking the base pattern and thus cannot remedy the deficiency in Hamaguchi et al. (first and second paragraphs, page 8).

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on

combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

For the foregoing reasons, the rejections, as set forth in the previous Office Action, is deemed proper.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hsien-ming Lee whose telephone number is 571-272-1863. The examiner can normally be reached on Tuesday-Thursday (8:00 ~ 6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 571-272-1855. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hsien-ming Lee
Primary Examiner
Art Unit 2823

Jan 27, 2005

HSIEN-MING LEE
PRIMARY EXAMINER
1/27/2005